California Wireless E9-1-1 Statewide Deployments

California 9-1-1 Office

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CA Wireless E9-1-1 Objective

To implement and maintain the capability to deliver wireless emergency phone calls to the appropriate Public Safety Answering Point (PSAP) with the most accurate caller identification and location information.

2007 Goals and Status

◆ **Have all primary PSAPs agree to take calls.**

 • **363 of 407 or 89% of PSAPs have a LOA on file**.

◆ **Have all primary PSAPs Format 04 compliant.**

 • **379 of 407 or 93% of PSAPs are compliant.**

◆ **Have PSAPs use 10-digit emergency non-published numbers for transfers outside network.**

 • **Accomplished and PSAPs are now using star codes to transfer Enhanced calls within the network to deliver the complete ANI/ALI.**

2007 Goals and Status

- ◆ **Reduce CHP busies with additional trunking.**
  - LA CHP increased all ESN trunk groups by one trunk from 3 to 4 trunks.
  - CHP Orange County is increasing its busiest trunk group (Santa Ana) from 3 to 6 trunks.

- ◆ **Complete Lassen/Modoc Enhance Network.**
  - Completed in October 2007 and provided 14,062 square miles of California with E9-1-1 capability.

- ◆ **WSPs to resolve "phantom" calls.**
  - Phantom calls have been reduced and AT&T Mobility is shutting down the TDMA network in March 2008.

Wireless Caller Background

◆ US Subscribers grew from 55M in 1997 to 253.4M in 2007. Worldwide there are 2.3B subscribers*

◆ 81% of the US population uses cell phones and used 2 Trillion wireless minuets in 2007.*

◆ 12.8% of US households are "wireless only."*

◆ Californians placed 23.3 million E9-1-1 calls in 2007 and 11.6M (50%) were wireless.

◆ Everyday in California an estimated 31,823 E9-1-1 wireless calls are made.

◆ California has deployed 82,732 total cell sectors. 19,371 or 25% were deployed in 2007.
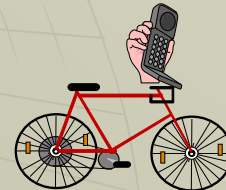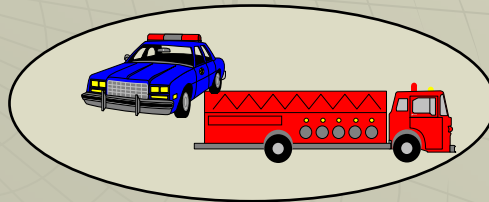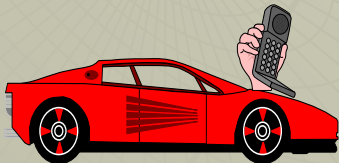
*CTIA "Wireless Quick Facts" December 2007.

Taking W9-1-1 Calls Directly

◆ **Allows Police, Fire and EMS to respond quicker to their communities needs.**

◆ **Time critical issues are:**

• **The size of a fire doubles every minute.***

1 Min 8 Min

• **A person who has stopped breathing or had a heart attack needs CPR within 6 minutes.***

• **Crimes in progress have a better chance of being stopped.**


* Source: Sacramento Metro Fire Department

The Wireless Team

- **Public Safety Answering Points (PSAPs)**
- **California Highway Patrol**
- **Wireless/County Coordinators**
- **Wireless Service Providers**
- **Database Providers**
- **Incumbent Local Exchange Carriers (AT&T/Verizon)**
- **Vendors**
- **State 9-1-1 Office**

Current Wireless Deployment Status

◆ **California has a total of 407 Primary PSAPs statewide.**

- **4 PSAPs are ready, but on hold.**

  (Long Beach P.D., Riverside S.O., Sacramento P.D. and Stanislaus Regional 911)

- **27 PSAPs are not Format 04 Compliant.**

- **34 PSAPs have not requested to deploy.**

- **318 PSAPs submitted Request for Service Letters, 254 deployed, and 64 are pending initial deployment.**
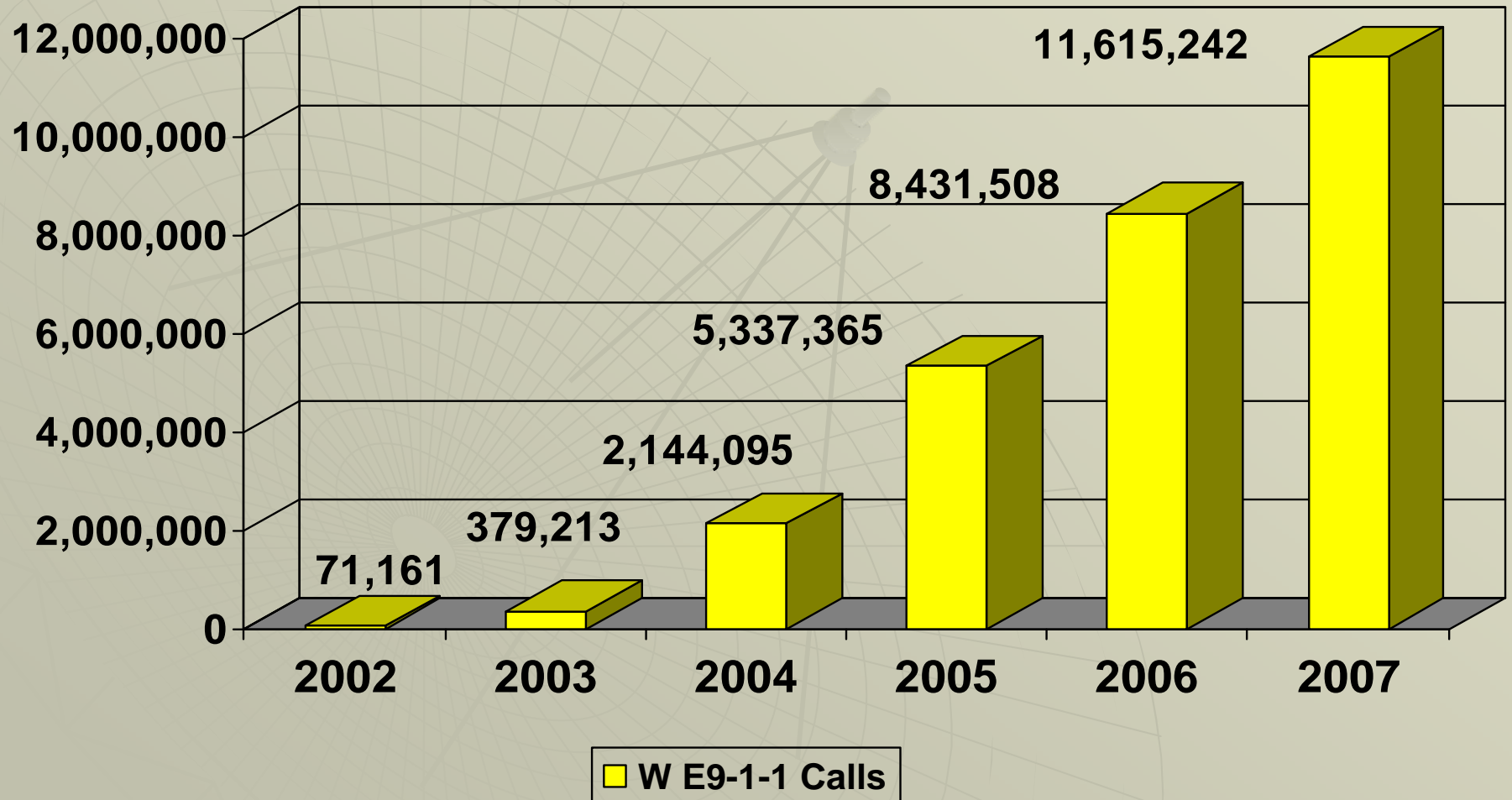
Wireless PSAPs Deployed or are Scheduled
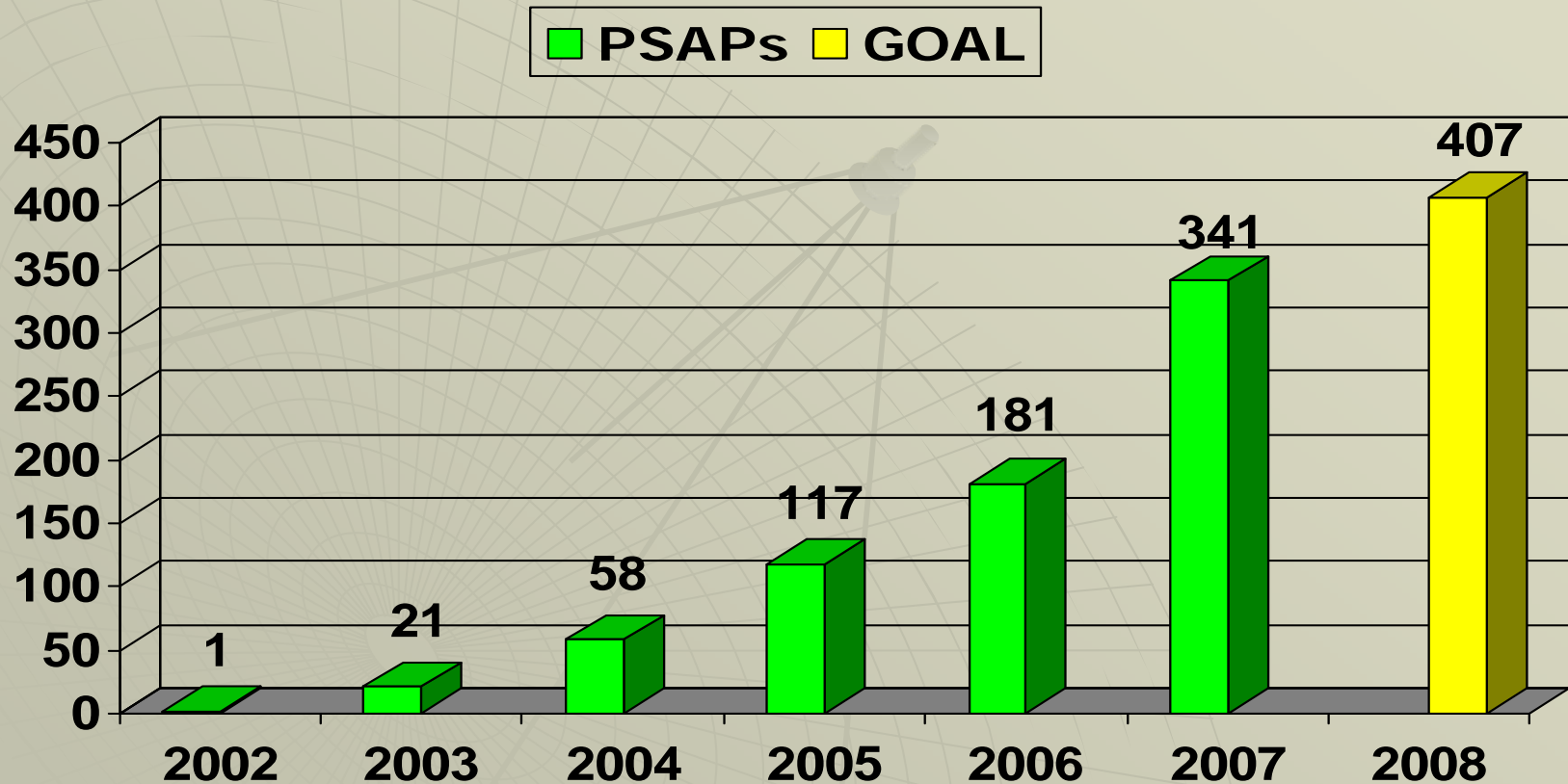
383 Local Primary + 24 CHP Communication Centers

407 Total Primary

2007 Wireless E9-1-1 Network Call Volume

Bar chart of W E9-1-1 Calls by year:
- 2002: 71,161
- 2003: 379,213
- 2004: 2,144,095
- 2005: 5,337,365
- 2006: 8,431,508
- 2007: 11,615,242

Legend: ☐ W E9-1-1 Calls

2007 Statewide Annual Call Distribution

Every month California receives an average of 967,937 Wireless E9-1-1 Calls.

CHP
8,505,337
73.2%

All Other PSAP's
3,109,905
26.8%
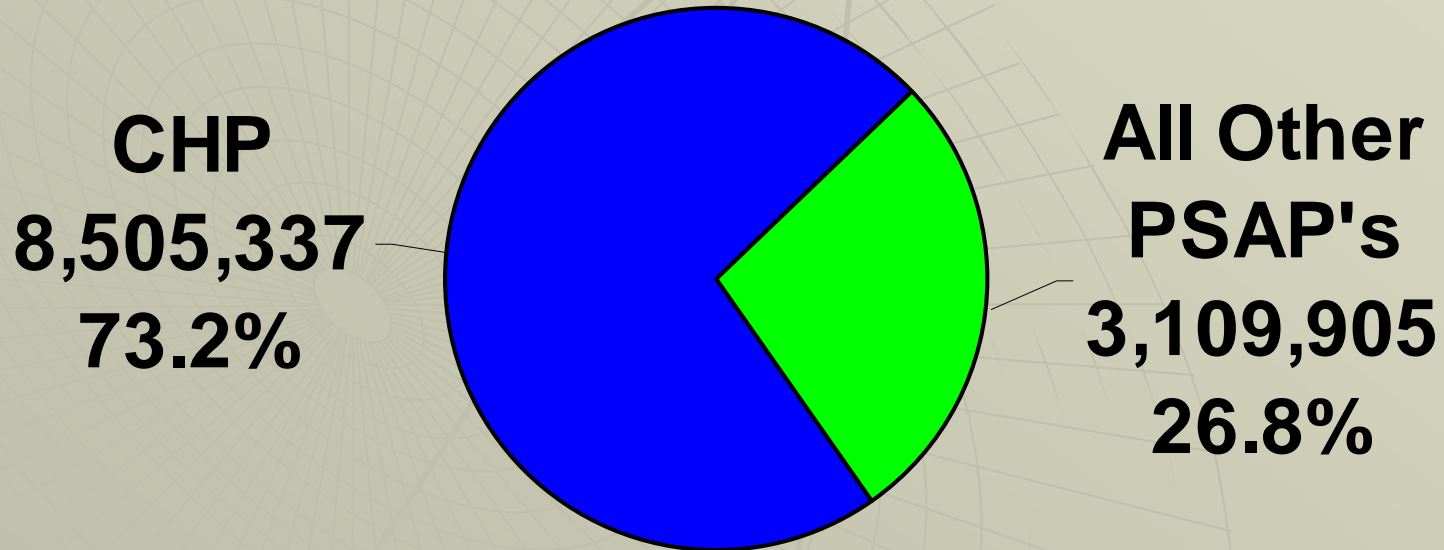
2007 Funded 9-1-1 Positions/Work Stations

CHP
167
9%
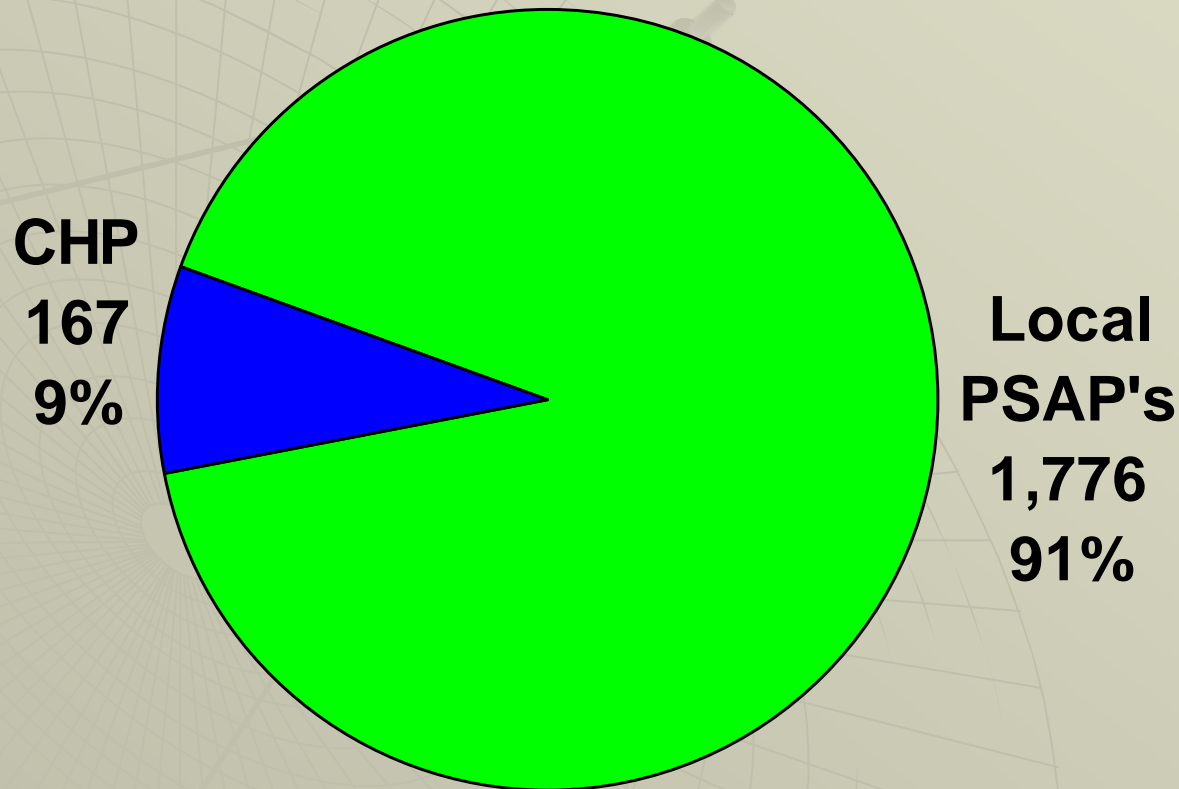
Local
PSAP's
1,776
91%

2007 Calls Per Workstation
CHP vs. Local PSAPs

CHP Received 50,930 Calls Per Workstation
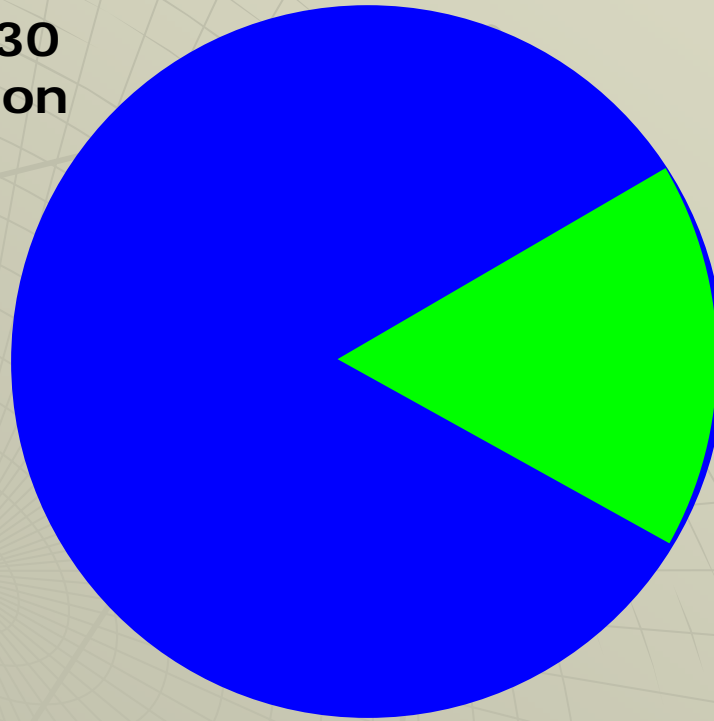
Local PSAP's Receive 8,354 Calls Per Workstation (16% of the calls CHP receives per Workstation)

2007 Total CDR Call Volume

CHP Calls
3,583,401
31%

PSAP Calls
3,109,905
27%

Not Answered
4,921,936
42%

Total E911 Calls
11,615,242
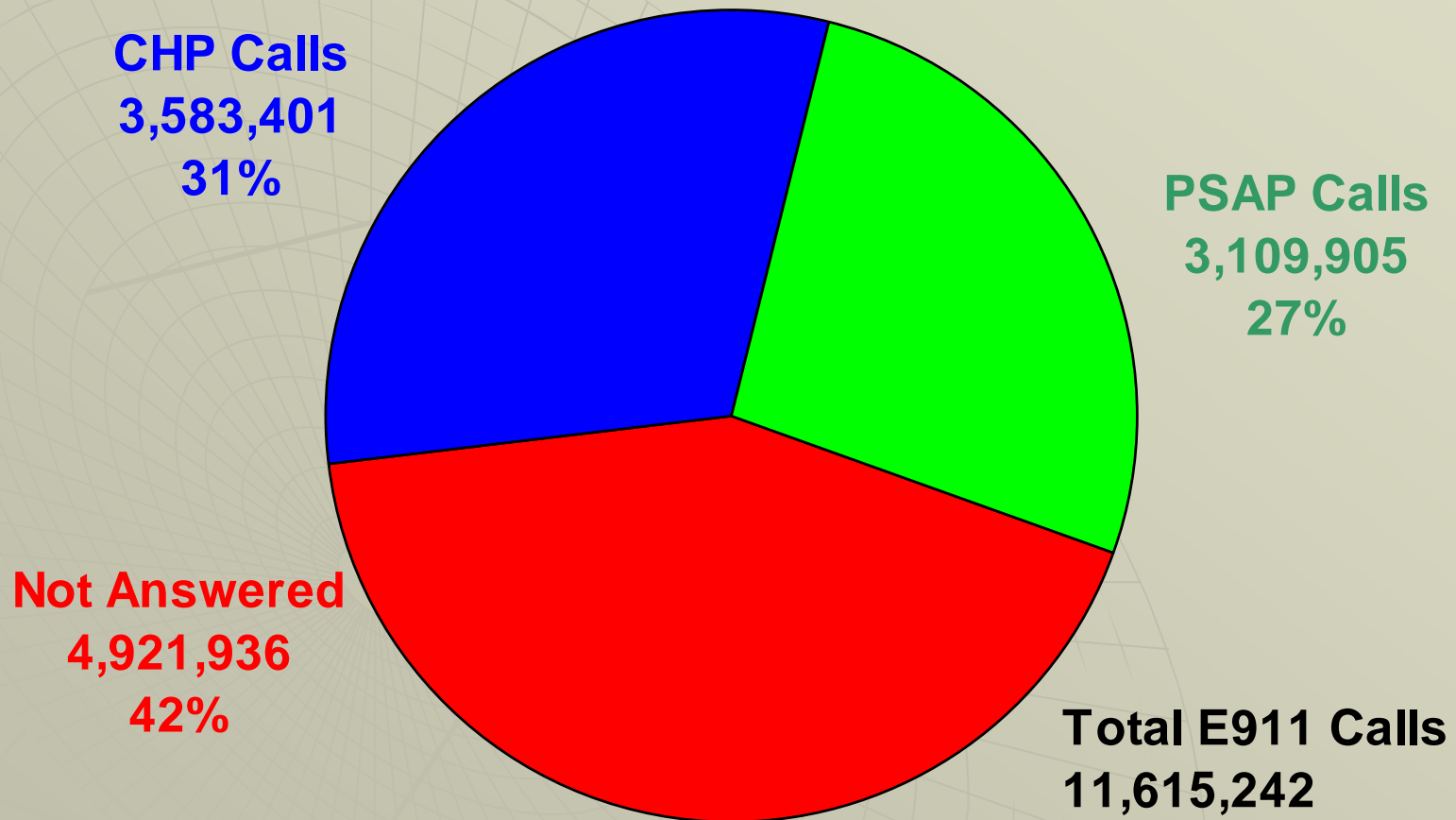
2007 Wireless Calls Types

◆ **Phase I** – Provides the Latitude/Longitude and Street Address of the Cell Tower with cell sector directional from the tower.

◆ **Phase II** – Provides the Latitude/Longitude of the caller using a GPS fix or tower triangulation.

Phase I
3,305,115
40.7%

Phase II
4,812,864
59.3%
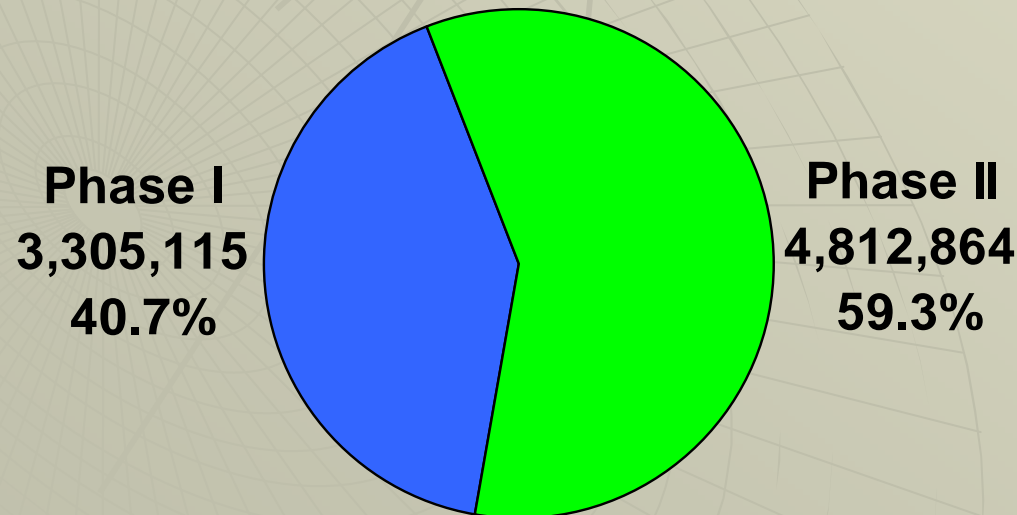
Phase I and Phase II Wireless
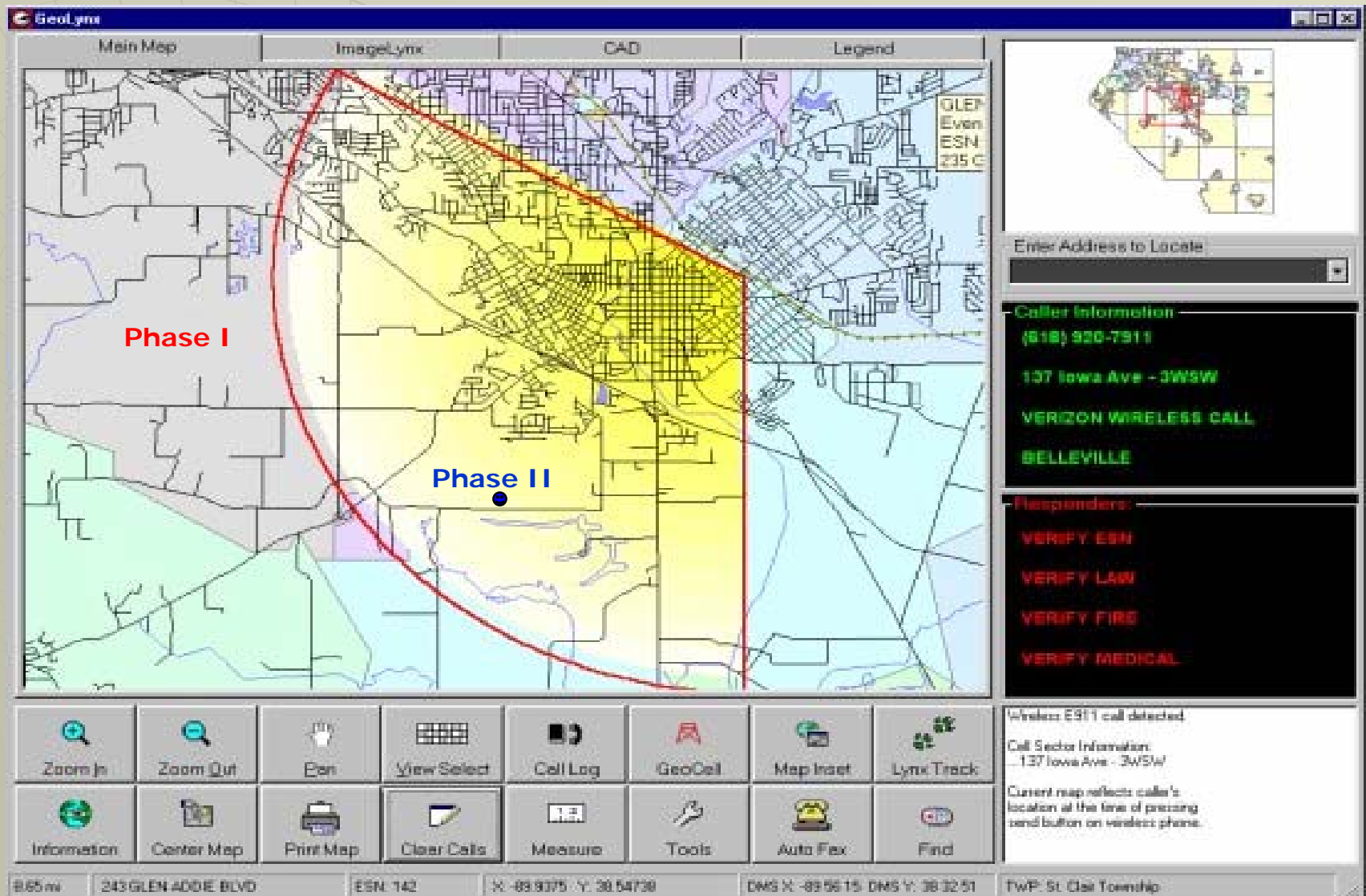
New Class of Wireless Service

- ◆ **Independent CMRS providers are deploying in California and utilize a dual band (800 MHZ/IDEN) handset. ICMRS use of Omni directional antennas for IDEN simultaneously covers several hundred square miles.**

- ◆ **ICMRS calls will only be routed to the CHP due to the large coverage areas.**

Non-Initialized Wireless Calls

◆ **Usually, but not always display 911-xxx-xxxx as the call back number and come from:**

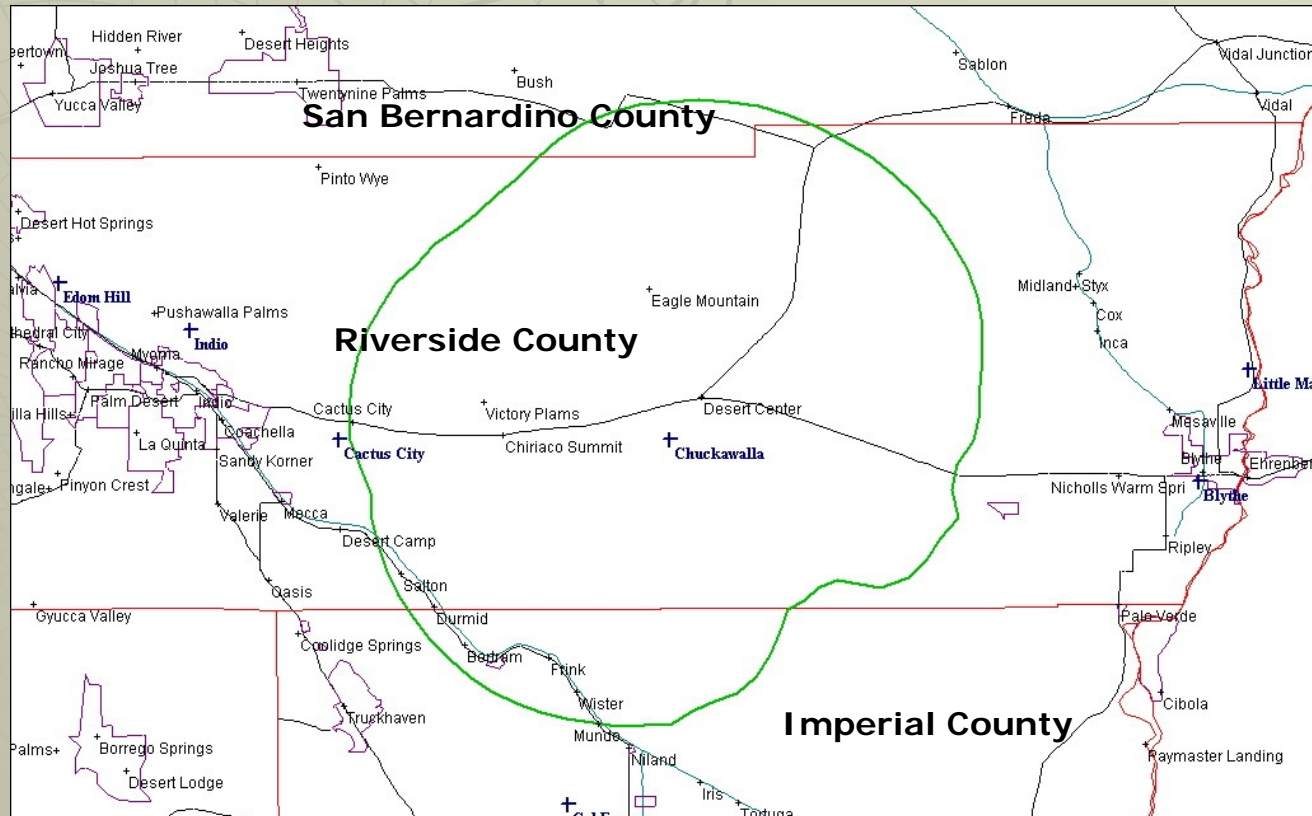- A handset without an account with any WSP. The handset may have had an account at one time that is now deactivated.

- A handset that is new, off the shelf and never been activated.

- An active phone that has not completed the network registration process after being powered on or has not completed the network registration process after entering a service area from a no service area.

- An active phone which does not have local service and the WSP does not have roaming agreement with a local carrier.

- A phone that had service suspended or shutoff due to unpaid bills or a prepaid phone that has no minutes left.

- A handset with an account that has had the SIM card removed.

Other Types of Wireless Calls

◆ **Phantom Call:**

- A 9-1-1 call with no audio or only one way audio between the caller and the PSAP.

◆ **Phase Zero Call:**

- A 9-1-1 call delivered to the CHP via PSTN lines rather than via the E9-1-1 network. They do not have any caller or location data. Local PSAPs will only receive a Phase Zero call if it was transferred from the CHP.

◆ **Abandoned Call:**

- A completed 9-1-1 call that made it to the PSAP but was hung up by the caller, dropped by the WSP, or dropped by the auto attendant before a dispatcher answers.

◆ **Butt Calls:**

- A call mistakenly placed to 9-1-1 by an auto dial button or unintentional dialing of 911.

◆ **Busy signal when dialing 9-1-1:**

- All 9-1-1 trunks between the S/R and PSAP are busy.

Harassing and Spoofing Calls

◆ **Harassing Calls:**

- Intentionally calling 9-1-1 to harass the PSAP or dispatcher, though not welcome or wanted, is a valid call. A 9-1-1 call was placed and it arrived at the PSAP.

- 9-1-1 calls from persons who intentionally call 9-1-1 and hang up prior to being answered to determine if a phone is working is also a valid call. These types of calls are not caused by the network.

◆ **Spoofing Calls:**

- A caller who intentionally displays a false callback number.

  ◆ Handsets that require the cell phone number to be programmed manually can be reprogrammed to display another number.

  ◆ Several websites offer a service and require the caller to call a specific number to have the call spoofed.

  ◆ "SpoofCards" offers the ability to change what someone sees on their caller ID when they receive a call. The card can also display a predetermined spoofing number so, when the caller uses the card, a false call back number is displayed.

Winton's Last Call

- 4051051110046 01 21:22:07 - 21:22:30

   (510) 759-6149   21:24   02/13
      221   W WINTON AVE

   HAY   CW 715 W911
   T-MOBILE (866) 537-0911

      (510) 511-1046
   HAY TB 711 G3   S
   TMOB
   HAYWARD PD

   QUERY CALLER FOR LOCATION

   LAT 37.67059500 LON -122.101857
   METERS 109   PERCENT 090

- The ANI/ALI record from Hayward PD shows the last 9-1-1 call placed by a caller know as *Winton*. Winton placed about 30,000 calls over the last few months.

- Winton was located on February 13, 2008 at 21:30 and arrested by Hayward PD who recovered the cell phone.

- The FCC, CHP, Hayward PD, Solano SO, FBI, CA 911 Wireless Office and T-Mobile worked together to identify the caller.

2008 Wireless Goals

- Continue to reduce CHP busies with additional 9-1-1 trunks.

- Optimize routing to deploy more cell sectors to local PSAPs.

- Have Riverside SO, Sacramento PD, Long Beach PD and Stanislaus Regional 9-1-1 deploy Wireless.

- Define a comprehensive process with identified assets to quickly locate and stop harassing callers.

- Work with County Coordinators to schedule more wireless cell sector deployments.

- Explore and develop new ways to reduce 9-1-1 call busies and have more calls answered.

CA Wireless E9-1-1 Deployment Barriers

- **PSAPs not willing to take Wireless calls directly.**

- **PSAPs awaiting equipment upgrades in order to properly display Format 04 calls.**

- **Misconception of major call overload and staffing.**

Wireless Issues

- **Wireless Mis-Routes:**
  - Must be resolved quickly due to tandem to tandem connectivity. Mis-Routes should be directed to your Wireless/County Coordinator for resolution.

- **ESRK/pANI Exhaustion:**
  - The LA and Bay Areas are quickly reaching the maximum available assignments. New NPAs in Orange County and LA will allow additional ESRK/pANI assignments.

- **WSP Deployment Contacts:**
  - The 9-1-1 Office will maintain a current list of contacts for PSAPs and County Coordinators.

WSP Maintenance Testing

◆ **The 9-1-1 Office recommends WSPs follow the NENA E9-1-1 Wireless Testing Procedure outlined in the NENA 57-002 Document to determine when to test with PSAPs.**

  • **WSPs have the ability to perform internal routine maintenance test of cell sectors without the call being delivered to the PSAP.**

  • **WSPs should only be placing E9-1-1 test calls to the PSAPs when initially deploying a PSAP, a physical change has been made to a sector, or when an ESN routing assignment has been changed.**

Contact Information

CA 9-1-1 Emergency Communications Office

Wireless E9-1-1 Project Web Page:
http://www.td.dgs.ca.gov/Services/911/we911

**Bi-Monthly Wireless E9-1-1 Meetings are held during even months on the
2nd Friday from 9:00-10:30am PST**

9-1-1 Office Consultants

http://www.documents.dgs.ca.gov/td/911/OfficeAssignments.pdf

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